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AUTHOR Langstaff, Anne L.: Volkmor, Cara B.
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ABSTRACT

Children who have specific learning problems in spite of intact intelligence and sense organs require a type of instruction that is adapted to their particular learning assets and liabilities. The "systems model" that is described consists of two input-output cycles which involve the teacher and the school psychologist. The teacher makes structured observations of the child's behavior which is transmitted to the psychologist for use in interpreting test results. The psychologist provides the teacher with a functional analysis of the child's learning style and status. The teacher then begins to plan a remedial program for which the goals and behaviors are clearly defined and a definite sequential procedure is to be followed. Materials which are most likely to bring about a desired response are selected. Revision and modification of procedures, objectives, and materials are outcomes of continuous evaluation of behavior change as it occurs. References are included. (DH)

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Anne L. Langstaff

and

Cara B. Volkmor

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A Method for Creating and Continuing Individualized Instruction

Anne L. Langstaff and Cara B. Volkmor*

University of Southern California

Within recent years there has been an increasing focus on children who, despite intact intelligence, motivation and sense organs, display specific learning problems and exhibit failure to profit from ordinary classroom instruction. Research (Nolan, et al, 1967) has shown, however, that these children are able to benefit by experience with instructional programs and materials which are designed and applied in a sequence and pace appropriate to their unique learning assets and liabilities. Implementation of individualized instructional programs requires both careful planning and continuous evaluation, and can be accomplished only when the teacher and the school psychologist function as a complementary team of learning specialists. Both Hewett (1964) and Peter (1965) have emphasized that the effect of any learning program which is designed for an individual child depends upon the establishment of a point of meaningful contact between the child and the teacher. It is the quality of the relationship between the teacher and the child which determines the teacher's effectiveness in motivating and in reinforcing the child's learning. This means

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* Anne L. Langstaff is a Research Associate, and Cara B. Volkmor is the Librarian and Master Teacher at the Instructional Materials Center for Special Education, University of Southern California, Los Angeles.

that the teacher must be skillful in recognizing and analyzing the nature of the difficulty a child is having with a particular task. Teachers must also be ingenious in adapting materials or devising new methods to help the child overcome or learn to compensate for his learning problem. The teacher should not be expected to accomplish all of these things on her own. When the teacher refers a child to the school psychologist because of suspected learning and/or behavior disorder, she is not asking for a detailed diagnosis and description of the child's problems, but for a specific analysis of the child's behavior in terms of what skills he has already acquired and what behaviors he must learn if he is to function adequately in the classroom. The teacher and the psychologist must co-operate to gather and coordinate all of the available information about the child for whom they are planning if they are to be successful in bringing about behavior change in the child.

At the Instructional Materials Center for Special Education at the University of Southern California we have developed a "systems model" for creating and continuing individualized instruction. The process consists of two input-output cycles; the first step is to compile and to integrate all the information we know about the child, the subject matter or behavior he must learn and the methods and materials which will help him learn (Mager, 1962). With this input we can then create an instructional unit appropriate to the learning needs of an individual child. Next, we apply this product (the instructional unit) in the teaching situation with the child; as instruction proceeds we evaluate the outcomes, or behavioral changes, we observe in the child for whom the program was designed. Evaluation of the consequences of instruction provides us with new data which may lead to modification or revision of the instructional unit.

Psychoeducational evaluation is the method by which we gather information about the child, and it is thus an integral part of the system. After a consideration of what constitutes psychoeducational evaluation, we shall examine the role of the teacher and finally the role of the psychologist within the process.

Psychoeducational Evaluation

To plan effectively for a child in the school environment we must understand him as a human person and as a learner. The term "psycho-educational" serves to identify the dimensions across which we shall be studying the child; since we are concerned with behavior change as it occurs across time, we use the term "evaluation" as opposed to measurement. Since the intended outcome of psychoeducational evaluation is more qualitative than quantitative and because the learning disabled child is characterized by his variability in performance across many ability and performance factors, we rely on a broad range of information-gathering procedures. Among these techniques are the informal but systematic observations which the teacher is able to make of the child's behavior as well as psychological test data obtained by the psychologist.

The Role of the Teacher

The teacher is in a good position to observe the child's behavior principally because she sees more of it than does the psychologist, or in many instances, than does the parent. The teacher can contribute to the initial and early identification of deviant learning patterns among the children she teaches. She can also gather very specific information about the child's functioning in the school situation which will be very useful to the school psychologist.

How, then, should the teacher function as an observer of child behavior? What should the teacher look for, and how will she organize the information she gathers? One of the ways in which the teacher's skill in observing behavior is acquired is through a sound knowledge of the principles of child development. Special Educators are typically concerned with children whose development is deviant; therefore, it is more productive to concentrate on the characteristics of the developmental process itself, rather than on normative data describing children at particular ages and stages. Viewed in this way, child development theory offers us a framework within which the teacher is able to analyze the content of the school environment and the expectations of that environment for the child.

The process of development is multi-dimensional; each dimension of development is contingent upon and related to all of the others; however, when we consider the various aspects separately, we uncover several perspectives from which the teacher may observe how the child is functioning relative to what she is providing for him in the school environment (Schermann, 1967). Development is characterized by openness, activity, growth, learning, mechanization, and symbolization (Anderson, 1957). The following list may be used to structure the teacher's observations.

(1) The developing system is an <u>open</u> one, reacting to stimulation from within and also from without. Always in a state of imbalance, the developing system has the capacity for self-correction and adaptation. The teacher should observe whether the child is able to

- modify his own behavior,
- work independently of her supervision,
- cope with unexpected changes in plans.

(2) Activity is a second characteristic of development. Both physical and mental growth - particularly language - depend upon the child's active exploration of his environment. The teacher should note whether the child

- enjoys handling and manipulating materials,
- interacts with adults and other children,
- conducts his activity in a purposeful and directed manner.

(3) The developing system is characterized by growth; with respect to cognitive growth, there is an increase in amount as development proceeds. Also the child acquires an increased capacity for integration, the ability to cope with complexity, and he increases his speed of functioning. Bruner (1966) recognizes language as the medium which facilitates this kind of growth. The teacher, then, should be alert to whether

- the child is progressing or regressing,
- there are gaps in his knowledge and understanding,
- the child is able to deal with increasingly more difficult tasks,
- the child can attend to instructions and directions.

(4) Every facet of development hinges on the child's capacity for learning. We assume that through learning, behavior is almost infinitely malleable and shapable. The teacher must observe

- the events or persons in the child's environment to which he responds,
- what maintains his behavior,
- if the child derives satisfaction from completing academic tasks,
- whether his performance level is consistent.

(5) Mechanization is also a characteristic of the developing system. Each time we unlock a door we do not have to stop and think how to proceed; we have internalized this routine performance. The

presented. For this reason, the choice of one test over another is made on the basis of whether the tasks presented enable the psychologist to view another dimension of the child's learning performance and not on the basis of what quantitative data they may yield about the child's visual decoding or eye-hand coordination abilities. To profit from regular classroom instruction the child must come to the learning situation with many well developed skills. He must be capable of responding to, and attending to both visual and auditory stimuli; he must be capable of perceiving order and logical sequence in behavior and events. Successful performance of tasks must be autoreinforcing for the child. He must have the ability to utilize language to mediate his own behavior, and to express abstract relationships. The child must be capable of planning and organizing his approach to problems which involve the manipulation of concrete materials.

The psychologist will obviously have to use segments of many standardized tests in order to evaluate the behaviors just mentioned. The Similarities subtest of the Wechsler Intelligence Scale for Children, for example, provides us with information regarding the child's ability to form concepts, to see relationships, and to reason abstractly. With children who experience difficulty in the area of expressive language, we might choose appropriate items from the Leiter International Performance Scale to gather the same kind of information about the child's cognitive functioning.

In many instances it will be desirable and often necessary to evaluate performance dimensions in addition to those just mentioned; we might need information about the child's personality strengths and level of social development. The psychologist should, however, guard against presenting the teacher with more facts about the child than she can realistically make use of in the classroom setting. The goal of psychoeducational evaluation is to

teacher should observe whether the child is able to perform efficiently such routine repetitive tasks as buttoning his coat or lining up on the playground.

(6) Finally, the developing child is capable of dealing with symbols. The child first begins to comprehend the objects in his environment through the actions he makes toward them; gradually words come to stand for things not present. Children who are equipped with verbal labels for objects and events become efficient problem solvers because they are able to mentally rehearse their plan of attack and to monitor their own behavior. Teachers will be able to note

- Whether the child experiences more difficulty in expressive language than in understanding the spoken or written language of others.
- if his language behavior changes significantly when he is in a group, or in the presence of strangers.

The teacher, then, can observe the child's behavior along the dimensions of openness, activity, growth, learning, mechanization, symbolization, and thus gather significant information about his progress. Such first-hand observational data provides the psychologist with a realistic basis for interpretation of test results.

The Role of the Psychologist

Psychologists traditionally rely upon standardized test instruments to provide the framework within which they oberve and assess behavior. When evaluating children with learning disabilities we are not particularly concerned with the score which the child obtains on a specific test, or with measuring specific amounts of ability, but we are concerned with discovering how the child approaches, attempts, and completes the tasks

provide the teacher with a behavioral, or functional analysis of the child's learning style and status - not merely label and diagnose his learning problems. Test data is not an end in itself; it simply permits us to make meaningful statements about the extent to which the child has or has not acquired the skills and abilities necessary to act upon instructional input in such a way that he achieves mastery (Jensen, 1968).

When psychological test data has been gathered in the manner suggested, and interpreted within the context of the observational data supplied by the child's classroom teacher, the teacher and the psychologist are ready to meet together to discuss the evaluation findings. Once this has been accomplished, they are able to generate a list of realistic recommendations which are directed specifically toward creating an effective learning environment for the child.

Planning a Remedial Program

After a planning session with the psychologist, the teacher, with specific suggestions and recommendations in mind, may begin to outline a specific plan for remediation. A remedial program must develop gradually and in such a way that the goals and the necessary behaviors are clearly defined and the procedure is built in a step-by-step sequence. The activities must be immediately rewarding in terms of the activities themselves. After determining what it is we need to teach, the next step in developing a teaching sequence for an individual child is gathering information on the subject matter to be taught and compiling a list of concepts that the child needs to learn. These concepts must then be broken down into specific tasks which are then defined behaviorally.

Behavioral Objectives

A behavior is defined as any observable activity. A behavioral objective is a statement of the specific behavior that the child will exhibit as evidence that he has learned. When breaking concepts down into specific tasks or behaviors to be performed, one must think of all the things that the child will have to do in order to learn the concept. Use a verb that describes an identifiable observation. To understand, to know, or to appreciate are not specific enough. These terms actually describe overall teacher goals or intentions, for example, "the child will learn to appreciate music." These general teacher goals must be turned around and restated as learner actions in order to know when we have taught the concept. To identify, to select, to construct, to draw, to name, to write, and to order are behaviors that the child can exhibit and are observable.

The following questions have been suggested as one alternative for formulating behavioral objectives.

> Who is to exhibit behavior?
> What action is the learner expected to perform?
> What is the situation that stimulates the learner's performance?
> What object is being acted upon or interacted with?
> What constitutes the set of acceptable responses?
> What constraints or restrictions or limitations such as time or materials are imposed (Vopni, 1968, p. 78)?

Another method for developing behavioral objectives has been proposed by the EPIC Evaluation Center in Tucson, Arizona. It focuses in part upon "the organizational structure of variables which affect an instructional program (EPIC, 1968, p. 11)." These variables are the institutional variable, which for our purposes is the student; the behavioral variable which is the response; and the instructional variable which denotes the

content or subject matter. The final step is supplying a measurement technique or a statement of how the behavior will be measured.

There are other guidelines which exist for preparing instructional objectives in terms of desired outcomes. Regardless of which system is preferred, the important factor is that we build objectives around the needs and capabilities of the learner and around his responses.

Materials

Having listed the concepts and defined each task in terms of the behaviors the child is to perform, the teacher must now select from all available materials, those which will be most likely to bring about the desired response from the child.

The following aspects of learning as outlined by Freidus (1960) may prove helpful when applied as guidelines to selecting instructional aids.

1. sensory stimulus - can the child use the material? Does it require a response of which the child is capable?
2. voluntary focus - is the format simple or too distracting for the child?
3. understanding - are the directions simple enough for the child to master? Does he perceive the task?
4. intended response - is the behavioral goal clear to the child?
5. feedback - does the child know whether he has accomplished the task successfully? Does it provide for maximum success?

One must also consider the amount of teacher direction the material requires. At first, the child's needs may require a one-to-one or small group situation where concrete materials are employed. Later, as the child progresses and gains in confidence through experiencing success, the small group setting may be changed to an individual setting. Materials

may then be selected which require less and less teacher direction until the child is capable of working on a more abstract level using worksheets. The psychoeducational evaluation of the child should have a significant bearing on the types of materials a teacher chooses to implement the remedial sequence. If the child is hyperactive, choose an aid that involves manipulation or construction of objects. If fine motor skills are poorly developed, consider whether materials to be used are within the child's ability. Or do they require complex motor manipulations? If the child's frustration level is low, choose materials that provide a step-by-step progression of tasks in which he is assured of succeeding at first. If the child cannot make generalizations about objects, but thinks in terms of common physical properties or use, materials of high visual impact, perhaps utilizing color cues and focusing on categorization and grouping activities, should be selected by the teacher. If the child is extremely impulsive or exhibits motor responses that appear meaningless or inappropriate, materials which exploit a purposeful motor reaction should be selected, such as peg-boards, for example.

With the outline of concepts to be taught, the list of tasks or behaviors to be performed and the selection of appropriate materials carefully matched to the tasks, the teacher is now ready to implement the teaching sequence. It may appear that this method of planning for individualizing instruction is a very tedious and time consuming procedure. However, once one begins to think in terms of desired behavioral outcomes as related to the child, the subject matter, and to the materials used, it soon becomes a matter of habit. The goals or objectives which have been set for the child are child-centered rather than teacher-centered. They

are realistic. They have a built-in system of evaluation based on observed behavior. The system of implementation, revision and modification and recycling can be continuous and can provide effectively for the needs of the individual child.

The system which we have presented for creating and continuing individualized instruction is on-going. As the instructional sequence is being applied with the child, behavior change is evaluated as it occurs. In this way, new data is gathered which lead to revision and additions to our original list of recommendations for the child. These data are used to modify and extend the instructional sequence.

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